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Geological Sciences
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NASA Academy Research Project:
Detection of biosignatures with highly sensitive radiolabeling techniques

Principal Investigator:
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Education and Experience:

I have always been awed and curious by the processes that take place on our planet. When I was fourteen I visited my first cave and from that point on I knew science was my passion, and I would someday end up studying caves. At that time, I spent three consecutive summers at Space Camp, which intensified my love of the unknown and made me even more curious about those processes that take place outside our planet. It wasn't until my third year as a biology undergraduate that these passions began to form a coherent picture for my future. I came across an article focusing on the strange life found in the sulfur cave Cueva de Villa Luz in Mexico. The microorganisms in this cave slowly eat away at the walls, creating more space and passages and ultimately forming the base of a complex ecosystem. The walls drip with acid and the levels of H_2S reach toxic levels, yet life continues in this extreme environment. I knew at that moment that geomicrobiology was for me, and I was determined to learn all I could about these extreme environments. It was then that I realized this field of study could take me underground into caves, as well as beyond our earth in the search for life on other planets.

After I graduated with a bachelor's in biology at Truman State University, I headed over to New Mexico State University to continue my education as a geology master's student. My research focus is on speleothems in Carlsbad Caverns and trying to determine if they were produced through the action of microbes or if they were just the byproduct of inorganic reactions. This requires the search for those ever elusive biosignatures--traces of life left behind from organic processes, traces that we can search for here on earth and

on other planets. My current goals are focused on learning more about these biosignatures and searching for more definite traces. I believe my experiences at the Academy will allow me to learn more about my research area and help me focus my research goals, as well as having an amazing time in the

Extracurricular Activities:

It has always been my love of books and imagination that opened up new interests and experiences for me. It was a book that opened my eyes to geology and consequently led me to years of researching and studying rocks and geological processes on my own; something I continue to do today both in school and out of school. My passion for science as well as my love of writing has led me to consider the possibility of science writing. I enjoy explaining the complex processes of science to people who are not familiar with them, and it is something I hope to continue to do either as a writer or even as a teacher. I think the best part about being a geology major, though, is all the exciting work I get to do outside. I love hiking, camping, and especially caving. I have spent a lot of time out in the field for research--in the desert searching for plant fossils, on mountains looking for rocks, and in caves searching for potential speleothems. When I'm not thinking about science or observing it in nature, I try to stay active in volunteering. I've helped organize the collection of household items and food for two families of refugees , headed two volunteer organizations both in high school and in college, and have made friends at nursing homes, soup kitchens and inner city schools. And in my spare time, I love goofing off by watching great comedians and bad, campy movies with friends.